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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,558	08/24/2006	Wen Gao	PU040061	8611

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EXAMINER	
GUARINO, RAHEL	

ART UNIT	PAPER NUMBER
2611	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/590,558	GAO ET AL.
	Examiner	Art Unit
	RAHEL GUARINO	2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 February 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,9-16,20-23,27,28,31-35,39-45,49-53,57 and 58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1,3-6,9-11,23,27,28,31-35 and 39-42* is/are allowed.

6)☒ Claim(s) *12,15,20,21,43,44,51,52* is/are rejected.

7)☒ Claim(s) *13,14,16,22,45,49,50,53,57 and 58* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)	
1) ☒ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.	6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to communications filed on 2/21/2011.

1. Applicant's arguments with respect to claims have been considered but are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 12,15,20,21,51,52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chrisikos US 6,728,301 in view of Baum et al. US 5,812,615

Re-claim 12, Chrisikos discloses a method for generating an error signal for an automatic frequency control (AFC) loop in a Code Division Multiple Access (CDMA) system (abstract), comprising the steps of:

accumulating sign information relating to phase differences in received pilot signals *(col. 8 lines 18-29 and col. 9 lines 1-67; steps 206 and 211 of fig.5);* utilizing an output of the error signal for the AFC loop (*col. 4 lines 51-53*); does not teach decimating the

accumulated sign information and utilizing an output of said decimating step as the error signal.

In the same fields of endeavor, however, Baum discloses decimating (524 similar to decimator 301; *col.4 lines 62-67);* and utilizing an output of said decimating step as the error signal (*col. 7 lines 26-36*)

Therefore, taking the combined teaching of Chrisikos and Baum as a whole would have been rendered obvious to one skilled in the art to modify Kenney to decimate and utilize an output of said decimating step as the error signal for the benefit of improving the performance and reliability of the AFC loop over poor channels.

Re-claim 15, the modified invention as claimed in claim 12, wherein the output of said decimating step is utilized as the loop error signal upon a decimation of a threshold number of the samples (*fig.6; col. 9 lines 40-46, where the comparator includes positive and negative threshold; col.8 lines 17-34*).

Re-claim 20, Chrisikos discloses a method for generating an error signal for an automatic frequency control (AFC) loop in a Code Division Multiple Access (CDMA) system (abstract), comprising the steps of:
accumulating sign information relating to phase differences in received pilot signals *(col. 8 lines 18-29 and col. 9 lines 1-67; steps 206 and 211 of fig.5);* utilizing an output of the error signal for the AFC loop (*col. 4 lines 51-53*); does not teach decimating the accumulated sign information and utilizing an output of said decimating step as the error signal.

In the same fields of endeavor, however, Baum discloses decimator for receiving (524 similar to decimator 301; *col.4 lines 62-67);* and utilizing an output of said decimating step as the error signal (*col. 7 lines 26-36*)

Therefore, taking the combined teaching of Chrisikos and Baum as a whole would have been rendered obvious to one skilled in the art to modify Kenney to decimate and utilize an output of said decimating step as the error signal for the benefit of improving the performance and reliability of the AFC loop over poor channels.

Re-claim 21, the modified invention as claimed in claim 20, wherein the output of said decimating step is utilized as the loop error signal upon a decimation of a threshold number of the samples (*fig.6; col. 9 lines 40-46, where the comparator includes positive and negative threshold; col.8 lines 17-34*).

Re-claim 51, Chrisikos discloses an apparatus for generating an error signal for an automatic frequency control (AFC) loop in a Code Division Multiple Access (CDMA) system (abstract), comprising the steps of:
Accumulator (146) for accumulating sign information relating to phase differences in received samples signals *(col. 8 lines 18-29 and col. 9 lines 1-67; steps 206 and 211 of fig.5)*; does not teach decimator the accumulated sign information and wherein an output of said decimating step as the error signal for AFC loop.

In the same fields of endeavor, however, Baum discloses decimating (524 similar to decimator 301; *col.4 lines 62-67);* and wherein an output of said decimating step as the error signal for AFC loop (*col. 7 lines 26-36*)

Therefore, taking the combined teaching of Chrisikos and Baum as a whole would have been rendered obvious to one skilled in the art to modify Kenney to decimate and utilize an output of said decimating step as the error signal for the benefit of improving the performance and reliability of the AFC loop over poor channels.

Re-claim 52, the modified invention as claimed in claim 51, wherein the output of said decimator is utilized as the loop error signal upon a decimation of a threshold number of the samples (*fig.6; col. 9 lines 40-46, where the comparator includes positive and negative threshold; col.8 lines 17-34*).

4. Claims 43,44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chrisikos US 6,728,301 in view of Naden et al. US 5,999,561

Re-claim 43, Chrisikos discloses a method for generating an error signal for an automatic frequency control (AFC) loop in a Code Division Multiple Access (CDMA) system (abstract), comprising the steps of:
accumulating sign information relating to phase differences in received pilot signals (*col. 8 lines 18-29 and col. 9 lines 1-67; steps 206 and 211 of fig.5)*; utilizing an output of the error signal for the AFC loop (col. 4 lines 51-53); controlling gain of the automatic frequency control loop in a Code Division Multiple Access in accordance with error signal

(*col. 3 lines 37-40*); does not teach decimating the accumulated sign information and utilizing an output of said decimating step as the error signal.

In the same fields of endeavor, however, Naden discloses teach decimating (3210) the accumulated sign information (*col. 46 lines 17-20*) and utilizing an output of said decimating step as the error signal (*col. 46 lines 1-15*).

Therefore, taking the combined teaching of Chrisikos and Baum as a whole would have been rendered obvious to one skilled in the art to modify Kenney to decimate and utilize an output of said decimating step as the error signal for the benefit of improving the performance and reliability of the AFC loop.

Re-claim 44, the modified invention as claimed in claim 20, wherein the output of said decimating step is utilized as the loop error signal upon a decimation of a threshold number of the samples (*col. 61 lines 43-50*).

Allowable Subject Matter

5. Claims 1, 3-6, 9-11, 23, 27, 28, 31-35, 39-42 are allowed.

6. Claims 13,14,16,22,45,49,50,53,57,58 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAHEL GUARINO whose telephone number is (571) 270-1198. The examiner can normally be reached on M-F (9-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khanh C. Tran can be reached on 571-272-3007. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rahel Guarino/
Examiner, Art Unit 2611

/KHANH C TRAN/

Primary Examiner, Acting SPE, Art Unit 2611